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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LAURENZI, MARK A	
ART UNIT	PAPER NUMBER
2894	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,470	KLAUK ET AL.	
	Examiner	Art Unit	
	MARK A. LAURENZI III	2894	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17 and 21-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17 and 21-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09-15-2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman 2002/0105080 A1, and further in view of Kodas et al. 2003/0161959 A1 and Chou et al. 2003/0218194 A1.

Re claims 17 and **21-22**, Speakman (i.e. all relevant Figs. and related text) teaches: a force sensor comprising: a substrate made of a material from a group consisting of glass, ceramic, plastic, a polymer film metal film and paper (a wide variety of substrates, [0038], different from the claimed invention);

and an organic field effect transistor applied on the substrate and a mechanical force acting on the transistor (sensor 650 operates by touch (side note: touch is a form of external mechanical force), [0463]), the organic field effect transistor comprising an active layer (p-fet, [0467]) provided between a gate dielectric 660 and a passivation layer (un-labeled layer directly above 662, Fig. 9(b)) and between a source electrode and a drain electrode (662 and 664), wherein the active layer (region between source and drain) is made of a material selected from the group consisting of thiophene, polythiophene (polythiophene, [0032]), and fluorine; and a pasivation layer

(It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to protect the semiconductor device as taught by Speakman in Fig. 9(b) with

a similar measure of protection (passivation layer 616, [0460]) provided to a semiconductor device in different embodiment of Speakman's for the benefit of protecting the semiconductor device of Fig. 9(b) (protective, [0460]))

yet, appears to be explicitly silent with respect to disclosing: wherein the substrate comprises a polymer film having a material from a group consisting of polymide and polyethene ether ketones and

where a mechanical force acting on the transistor causes a change in its source-drain voltage or its source-drain current which corresponds to the force and is detected as measurement quantity for the acting force.

In the semiconductor art there are several various conventional substrates. One of such substrates is a polymide [0015] substrate as taught by Kodas.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to replace the substrate as taught by Speakman with the substrate as taught by Kodas, since the provision of a specific substrate is dependent upon various design parameters that are well recognized by those of ordinary skill in the art to be equivalent ways of providing support to a semiconductor device.

Yet, Speakman in view of Kodas appears to remain explicitly silent with respect to disclosing: where a mechanical force acting on the transistor causes a change in its source-drain voltage or its source-drain current which corresponds to the force and is detected as measurement quantity for the acting force.

However, Chou (i.e. all relevant Figs. and related text) teaches: **a constant voltage/current circuit that is connected to a current/voltage measuring device that detects a source-drain current** [0020].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the semiconductor device including a source drain system as taught by Speakman in view of Kodas with the functional measurement system as taught by Chou for the benefit of detecting if the current/voltage is moving towards stability (Chou, [0059]).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas and Chou as applied to claim 17 above, and further in view of Sakai et al. 64-5075.

Re claim 23, Speakman in view of Kodas and Chou appear to be explicitly silent with respect to disclosing: wherein the substrate is configured as a deformable diaphragm and the measurement quantity corresponding to the bending state of the diaphragm.

However, Sakai (i.e. all relevant Figs. and related text) teaches: that a diaphragm can function such that a diaphragm is provided and the change of a current induced by the change of the diaphragm caused by an applied pressure is detected (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the semiconductor device as taught by Speakman in view of Kodas and Chou with the diaphragm as taught by Sakai for the benefit of providing a medium such as a diaphragm that provides enhanced sensitivity so as to be able to detect pressure.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas and Chou as applied to claim 17 above, and further in view of Yaniv et al. 4,827,085.

Re claim 24, Speakman in view of Kodas and Chou appears to be explicitly silent with respect to disclosing: wherein the force sensors are arranged at regular distances from one another in a form of a one- or two-dimensional matrix on the substrate.

However, Yaniv (e.g. all relevant Figs. and related text) teaches a position sensor (sensitive position sensor, col. 2/lls. 19-21) device including an array (col. 15/lls. 60-68) devices and where the force sensors are arranged at regular distances from one another in a form of a one- or two-dimensional matrix on a substrate (Shown in Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the semiconductor device as taught by Speakman in view of Kodas and Chou with the device layout configuration as taught by Yaniv for the benefit of forming an organic field effect device that can be used to detect and determine the precise location of a force (Yaniv, col. 11/lls 65-68 and col. 12/lls. 1-2) e.g. a finger touch.

Re claim 25, the limitations of claim 25 are met by the combination of prior art references as applied to claim 17 above (Chou, [0020]).

Claims 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas, Chou and Yaniv as applied to claim 25 above, and further in view of Mehta et al. U.S. 3,795,898.

Re claim 26, Speakman in view of Kodas, Chou and Yaniv teach all of the limitations of claim 26 including: the sensor according to claim 25, comprising: where the organic field effect

transistors are arranged in rows and columns (Yaniv, Fig. 4); yet appear to be explicitly silent with respect to disclosing: a row decoder is connected or can be connected to the gate terminals for row-by-row selection and driving.

However, Mehta teaches: terminals connected to the gates of device Q40 in the row address decoders (col. 9/lls. 36-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the semiconductor device as taught by Speakman in view of Kodas, Chou and Yaniv with the gate terminal-row address configuration as taught by Mehta for the benefit of providing a semiconductor device with very little power consumption (Mehta, col. 2/lln. 17).

Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas and Chou as applied to claim 17 above, and further in view of Yaniv et al. 4,827,085 and Mehta et al. U.S. 3,795,898.

Re claim 27, Speakman in view of Kodas, and Chou teaches: a driving and measuring unit connected to the drain or source terminals of the organic field effect transistors in all columns for the purpose of driving and detecting the column position of the force action (Chou, [0020] as in claim 17);

yet appears to be explicitly silent with respect to disclosing:

a multiplicity of force sensors according to claim 17 that are arranged on a common substrate at regular distances in the form of a two-dimensional matrix subdivided into rows and columns; and a row decoder connected to tile gate terminals of the organic field effect transistors

of all the rows for row-by-row selection and detection of the position of the force action in tile row direction.

However, Yaniv (e.g. all relevant Figs. and related text) teaches a position sensor (sensitive position sensor, col. 2/lls. 19-21) device including an array (col. 15/lls. 60-68) devices and where the force sensors are arranged at regular distances from one another in a form of a one- or two-dimensional matrix on a substrate (Shown in Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the semiconductor device as taught by Speakman in view of Kodas and Chou with the device layout configuration as taught by Yaniv for the benefit of forming an organic field effect device that can be used to detect and determine the precise location of a force (Yaniv, col. 11/lls 65-68 and col. 12/lls. 1-2) e.g. a finger touch.

Yet Speakman in view of Kodas, Chou and Yaniv appear to remain explicitly silent with respect to disclosing:

However, Mehta teaches: and a row decoder connected to tile gate terminals of the organic field effect transistors of all the rows for row-by-row selection and detection of the position of the force action in tile row direction (terminals connected to the gates of device Q40 in the row address decoders (col. 9/lls. 36-41)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the semiconductor device as taught by Speakman in view of Kodas, Chou and Yaniv with the gate terminal-row address configuration as taught by Mehta for the benefit of providing a semiconductor device with very little power consumption (Mehta, col. 2/lln. 17).

Claims 28-29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas, Chou, Yaniv and Mehta as applied to claim 27 above, and further in view of Blanchet-Fincher 2002/0149315 A1.

Re claims 28-**29**, Speakman in view of Kodas, Chou, Yaniv and Mehta appears to be explicitly silent with respect to disclosing: at least one perspiration-resistant protective layer provided as protection against the ingress of water and organic contaminations above the active layer of the organic field effect transistors.

However, Blanchet-Fincher (i.e. all relevant Figs. and related text) teaches: that a **perfluorinated** material may be used as a protective layer for an organic electronic device [0083-0084].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the protective layer as taught by Blanhet-Fincher for the protective layer as taught by Speakman in view of Kodas, Chou, Yaniv and Mehta for the benefit of protecting the device.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas, Chou, Yaniv, Mehta and Blanchet-Fincher 2002/0149315 A1, as applied to claim 29 above, and further in view of S.T. Cui. "Intermolecular potentials and vapor-liquid phase equilibria of perfluorinated alkanes.".

Re claim 30, Speakman in view of Kodas, Chou, Yaniv and Mehta and Blanchet-Fincher appears to be explicitly silent with respect to disclosing: where the perfluorinated material is perfluoro-hexadecane.

In the semiconductor art there are several various perflurinated materials. One of such perflurinated materials perfluoro-hexadecane is taught by S.T. Cui (title: "Models and simulation details").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to replace the perfluorinated as taught by Speakman in view of Kodas, Chou, Yaniv, Mehta and Blanchet-Fincher with the perfluorinated as taught by S.T. Cui, since the selection of a specific perflurinated material is depend upon design parameters that are well recognized by those of ordinary skill in the art to be equivalent ways of providing a perflurinateed material.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas, Chou, Yaniv, Mehta and Blanchet-Fincher as applied to claim 28 above, and further in view of Reamey et al. U.S. 5,543,944.

Re claim 31, Speakman in view of Kodas, Chou, Yaniv, Mehta and Blanchet-Fincher appear to be explicitly silent with respect to disclosing: wherein a first protective layer includes a hydrophobic material and a second protective layer includes a hydropkilic polymer which acts as a diffusion barrier against lipophilic contaminants.

However, Reamey teaches the use of hydrophilic and lipothilic materials as an encapsulating material (col. 7/lls. 38-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device including a passivation layer as taught by Speakman in view of Chou, Yaniv, Mehta and Blanchet-Fincher with the hydrophilic/lipothilic materials as

taught by Reamey for the benefit of forming an encapsulated device which is resistant to contamination (e.g. water).

Claim 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speakman in view of Kodas, Chou, Yaniv, Mehta, Blanchet-Fincher and Reamey as applied to claim 31 above, and further in view of Ivanov et al. 2004/0253375 A1.

Re claims 32-33, Speakman in view of Kodas, Chou, Yaniv, Mehta, Blanchet-Fincher and Reamey appear to be explicitly silent with respect to disclosing: wherein a first protective layer includes a hydrophobic material and a second protective layer includes a hydrophilic polymer which acts as a diffusion barrier against lipophilic contaminants and the fingerprint sensor according to claim 31, wherein the first protective layer covers the second protective layer.

However, Ivanov (i.e. all relevant Figs. and related text) teaches: the formation of a dielectric layer to protect a semiconductor substrate [0150] comprising a lower hydrophilic material (144, [0174)] and an upper hydrophobic material (156, [0173]) (exact opposite of the claimed invention).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify Ivanov by reversing the order of layers, since choosing from a finite number of predictable solutions to yield a result suitable for the task of providing a protective material is considered to be obvious to one of ordinary skill in the art.

Additionally, it would have been obvious to one or ordinary skill in the art at the time the invention was made to rearrange the hydrophobic and hydrophilic layers, since part relocation of a device where said relocation would not modify the operation of the device involves only

routine skill in the art and is unpatentable. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) and In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

Response to Arguments

Applicant's arguments filed 08-26-2010 have been fully considered but are moot in view of the present ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK A. LAURENZI III whose telephone number is (571)270-7878. The examiner can normally be reached on Monday through Friday 8am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Nguyen can be reached on 571-272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK A. LAURENZI III/
Examiner, Art Unit 2894

/Kimberly D Nguyen/
Supervisory Patent Examiner, Art Unit 2894

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